

~~The Epidaurus Project: Holism in DoD Health Facilities~~

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AMSUS/SMCAF Conference

St. Louis, MO

November 19, 2009

Medicine in the United States: The IOM Reports (2001)

- 25% of patients report life-changing harm from health encounters
- 100,000 dead per year (mostly from medical errors)
- Unsustainable expense
- 50 million uninsured, more underinsured
- A BROKEN SYSTEM.



Holism and Reductionism

- **Reductionism:** Break the system into its parts
 - Good metrics for many processes
 - Trouble addressing suffering, whole patient outcomes, public health
 - Lack of care integration: Medical Errors
- **Holism:** More “real world”, but few good performance metrics
- **Both are valid within their spheres**
- **How to develop and integrate holistic care?**

The Dream 2001

- Build this future in the Military Health System—
- --including buildings, care processes, and research—
- --and make it a model for the rest of America.

Approaches to Holism

- The built environment
- Patient and Family Centered Care (PFCC)
- Integrated care
- Wellness (diet, exercise, integrative medicine, etc.)



Definitions



The Sanctuary of Asklepios at Epidaurus was the most celebrated healing centre of the ancient world. The ancient Greeks approached health from a holistic point of view, and the Sanctuary included a theater, gymnasium, and stadium as well as traditional medical treatments. In Epidaurus, the vast site of temples and hospital buildings is a tribute to the healing cults of Greek and Roman times.

Epidaurus Project Symposium on Healing Design

Evidence-Based Design (EBD) - the conscientious, explicit and judicious use of current best evidence in making planning and design decisions that advance the needs of patients, staff, families and organizations.

Epidaurus Project - conceived 2001
- What hospital architectural/design features embody patient-centered design (PCD)?" CAPT F. Foote, USN

Epidaurus Project I– Bioethics and Administration (2001-3)

- **Ed Pellegrino, M.D. (Head, President's Council on Bioethics)**
- **Roger Bulger, M.D. (Pres. IOM; NIH)**
- **Eric Cassell, M.D. (Cornell Univ.)**
- **VADM Jim Zimble (USUHS)**
- CAPT Fred Foote, USN
- Ken Shine (IOM, RAND)
- David Leach (ACGME)
- Jay Gershen (Univ. Colorado)
- John Porretto (Univ. Texas)
- Barbara Mittleman (NIH)



Epidaurus Project
Architects/Designers
USUHS Conferences, 2003, 2006, 2009

- K. Hamilton (TX A&M)
- Wayne Ruga (England)
- Y. August (PA)
- S. Verderber (Clemson)
- S. Frampton (Planetree)
- Roger Ulrich (TX A&M)
- R. Guenther (Green)
- B. Huelat (Healing)
- A. Ridenour (Arts)
- D. Kamp (Gardens)
- R. Orr (Planetree)
- Craig Zimring (EBD)
- B. Komiske (Philanthropy)

Epidaurus Project

- NO GOVERNMENT CONTRACTS.
- PATRIOTIC DONATION OF SERVICES
- USUHS Conferences 2003, 2006, 2009
- Consensus statements 2002 and 2005
- Promote inclusion of Patient/Family-Centered and Evidence-Based Design in DoD
- Website
www.usuhs.mil/pmb/hsa/Epidaurus

2005: The BRAC Opportunity

- Vision of a world class primary and tertiary centers embodying latest in healing design
- A beacon for our nation
- Opportunity to embody Epidaurus concepts
- Partnership with other DoD Projects on Evidence-Based Design (TMA (Boenecke, Malone), Army HFPA (Bond))

Epidaurus Design Principles (Consensus Statements 2002, 2005)

- I. Ensure the integrity of the clinical encounter
 - Core values; healing focus; **evidence-based design**
- II. Empower the patient
 - Human scale; residentialism; family involvement
- III. Focus on the relief of suffering
 - Incorporate nature; Spirituality; use of the Arts
- IV. Create a lifelong healing relationship
 - Multidisciplinary spaces; “Green” design; advanced informatics; **outcomes analysis and EBM**

MHS Design Principles (2007)

- Create a patient and family-centered environment that respects privacy and dignity and relieves suffering
- Improve the quality and safety of healthcare delivery
- Create a positive work environment through ergonomics, efficiencies, lighting, and adjacencies
- Design for maximum standardization and future flexibility and growth
- Support care of the whole person, enhanced by contact with nature and positive distractions

Linking the Built Environment to MHS Strategy

CAPT Steve Bell, USN, Director,
Facilities, BUMED

Clay Boenecke, Chief, Capital
Planning Branch, PPMD/TMA

COL Rick Bond, Commander,
US Army Health Facility
Planning Agency

CAPT Fred Foote, MC, USN,
Project Officer, The Epidaurus
Project

COL Ron Steele, Chief, US Air
Force Health Facilities Division



Office of Transformation Patient/Family-
Centered/Evidence-Based Design Working Group
20 February 2007

Leadership p Direction



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

1200 DEFENSE PENTAGON
WASHINGTON, DC 20301-1200

JAN 22 2007

MEMORANDUM FOR COMMANDER, NAVAL FACILITIES ENGINEERING
COMMAND
COMMANDER, UNITED STATES ARMY CORPS OF
ENGINEERS

SUBJECT: QDR Roadmap and Evidence-Based Design

As BRAC implementation drives the acquisition of new medical facilities in San Antonio and the National Capital Area, I request that you instruct the respective design teams to apply patient centered and evidence based design principles across all medical MICLON construction projects. A growing body of research has demonstrated that the built environment can positively influence health outcomes, patient safety, and long-term operating efficiencies to include reduction in staff injuries, reduction in nosocomial infection rates, patient falls, and reductions in length of hospital stay. Incorporating the results of this research along with changes in concepts of operations into the design of some of our most significant facilities will allow the Military Health System and the patients entrusted to our care to reap substantial health and system wide benefits for many years to come.

The Military Health System Office of Transformation was established by the Deputy Secretary of Defense to ensure that recommendations from the Quadrennial Defense Review are effectively implemented. QDR Roadmap 17 mandates leveraging and integrating evidence-based medicine with effective patient partnerships to ensure judicious use of resources while promoting healthy individuals and communities. In support of QDR Roadmap 17, the Office of Transformation has assumed leadership of a Tri-Service interdisciplinary team with substantial knowledge of patient centered and evidence based design. This team can be made available to provide any support or guidance that might be required.

My points of contact are COL Keith E. Essen, Deputy Director Army, and Military Health System Office of Transformation and Mr. Clay Boenecke, Chief, Capital Planning Branch, Portfolio Planning and Management Division, TMA. COL Essen can be reached at (202) 762-3098 or keessen@us.med.navy.mil. Mr. Boenecke can be reached at (703) 681-4324 or clayton.boenecke@tma.osd.mil.

William Winkenwerder, Jr.

William Winkenwerder, Jr., MD

Evidence Based Design (EBD)

- **Epidaurus conception of EBD**
 - **Basic** (reductionist metrics apply):
 - Single rooms, air, light, noise, infection control
 - **Advanced** (holistic effect on the patient):
 - Nature, art, spirituality
 - **Augmented**: (holistic effect on care process):
 - Interdisciplinary, wellness, or virtual spaces; advanced arts programs

Walter Reed National Military Medical Center



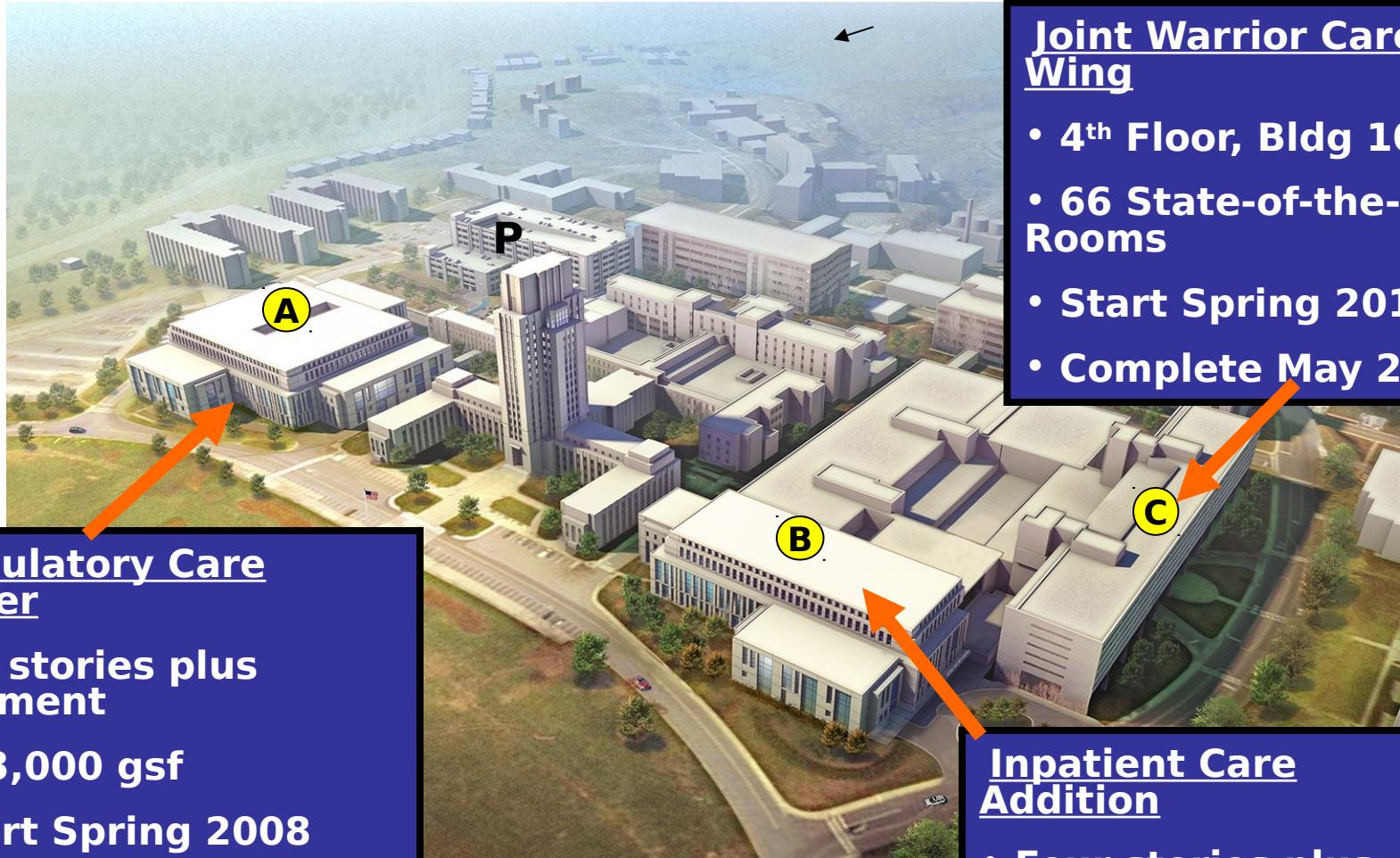
Building A

Building B

West Elevation

Aerial View - Medical Center

WRNMMC Bethesda



Ambulatory Care Center

- Six stories plus basement
- 533,000 gsf
- Start Spring 2008
- Complete October 2010

Joint Warrior Care Wing

- 4th Floor, Bldg 10
- 66 State-of-the-art Rooms
- Start Spring 2010
- Complete May 2011

Inpatient Care Addition

- Four stories plus basement

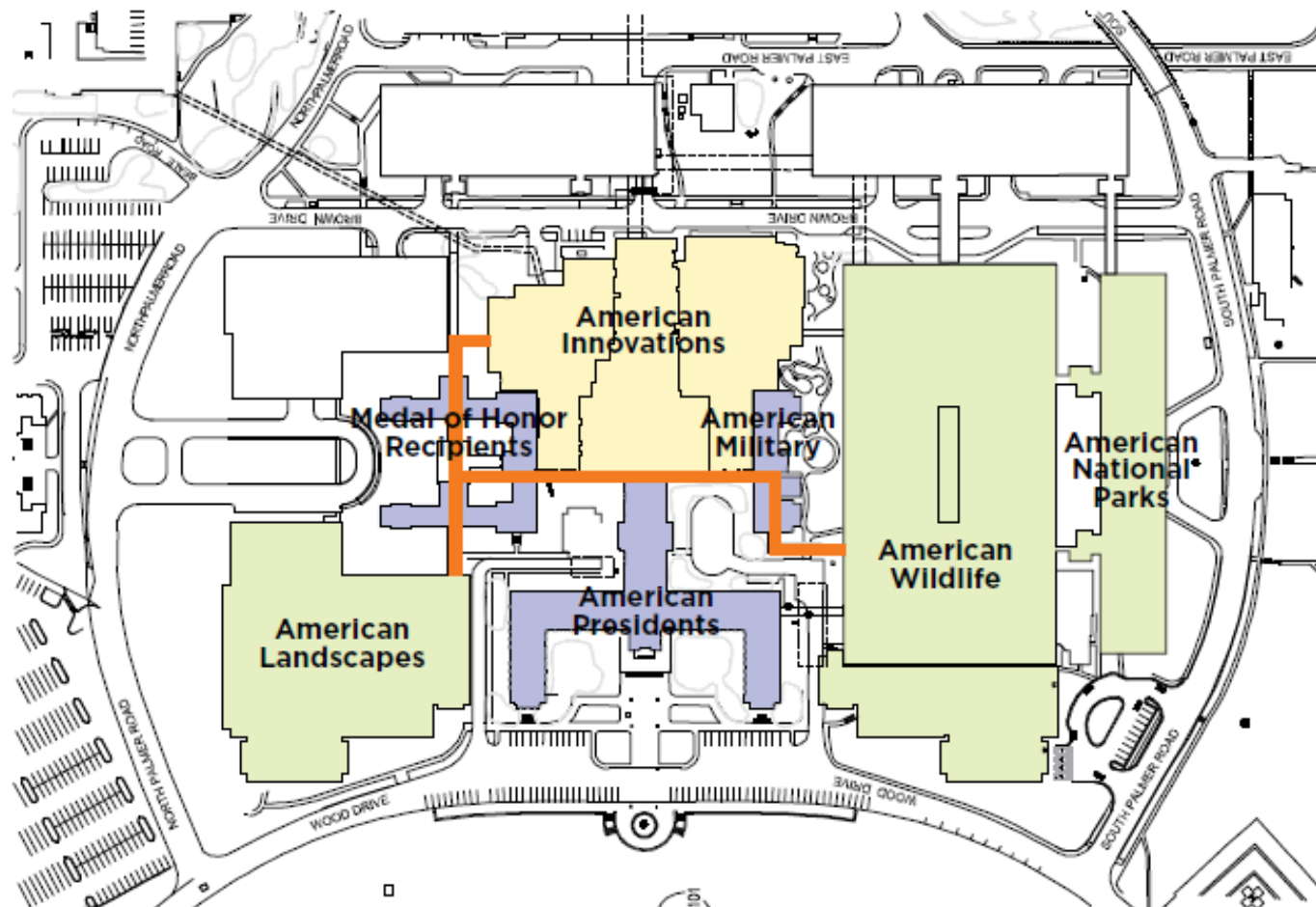
WRNMMC: Concerns

- Work with old buildings
- Furious pace required
- Inadequate/unpredictable funding
- Lead agency (NAVFAC) understaffed
- Interservice rivalry

WRNMMC Design: Strengths

- State of the Art ORs and ICUs
- New buildings: Solid design
 - Single patient rooms (SPR), air, light, noise control
 - “Green”, nontoxic, ergonomic
- Renovation to single rooms in BLDG 10
- Outpatient: Co-location of related services
- Good Wayfinding plan
- Overall may see 50% decreased inhouse morbidity (mostly due to SPR, family)

WAYFINDING THEME APPROACH ZONE NOMENCLATURE OPTION ONE



American Nature and Military Heritage Theme

A nature theme would be applied to buildings that have a high concentration of patient/visitor use. The zone names would include American Landscapes, American Wildlife and American National Parks.

The buildings with primarily administrative areas would be given zone names related to military heritage. These theme topics would include American Presidents, American Military and Congressional Medal of Honor recipients.

Buildings 2/7/8 are a mixed use group of buildings that house "Main Street", patient areas as well as administrative areas. The use of a nature theme is not critical, so we propose a theme that celebrates the American People and their Innovations and Accomplishments. Future interpretive displays would include inventions, discoveries and innovations from electricity, space travel, music, science, architecture, technology and the arts.

In this option, the zone is identified, then layered with a zone interpretive topic which changes from level to level, making this approach more complex than a typical zone system. The next page illustrates a matrix of potential interpretive topics.

WRNMMC: Challenges

- Walking distances
- Family logistics support
 - Need “Fisher Suites” on wards
- Limitations of BLDG 10
- Need renovation money (wayfinding plan)
- Little “Advanced” EBD (nature, art, spiritual spaces)
 - May be supplied by philanthropy

WRNMMC Campus: (RFP-2)

- Warrior Housing Facility (expanding)
 - New dining facility
 - Needs full Mologne House capabilities
 - ? Holistic Warrior rec/activity zone
- Joint Warrior Transition Unit
- BLDG 54: Medical Admin/Gym/Wellness Center
- New Navy Lodge
- 3 new parking garages
- Complete by SEPT 2011
- Stand alone Cancer Center?

PROPOSED NNMC CONFIGURATION

Cedar Lane

Beltway

Barracks

Barracks Renovation

Gym/Poo

Parking Garage

Admin Renovation & Construction

Parking Garage

Warrior Care

Fisher Houses

NICoE

NEX

**Jones Bridge
Road**

Parking Garage

Navy Lodge

WRNMMC: Philanthropy

- NICOE Brain Injury Center (Intrepid Fallen Heroes Foundation)
- Fisher House “Healing Village”
- Warrior/Family Rec/Communtiy Center (USO)
- Epidaurus Project Interiors/Gardens Initiative

Node of Excellence: Medical Home

- NNMCM Pilot: CDR K. Dorrance, USN
- Care processes (team medicine, proactive care, pt. Self management)
- Patient/Family Centered Care (PFCC)
- Advanced IT: PHR, Proactive/Disease MGMT; outcomes analysis
- Imbedded wellness and psych health staff
- All primary care/general Int Med at WRNMMC

Design Features

- 12 pods accommodated
- No increase to DGSF
- No changes to Residents/ Research Admin Space
- Collaborative work spaces accommodated within clinic module



Node of Excellence: Ft. Belvoir Community Hospital

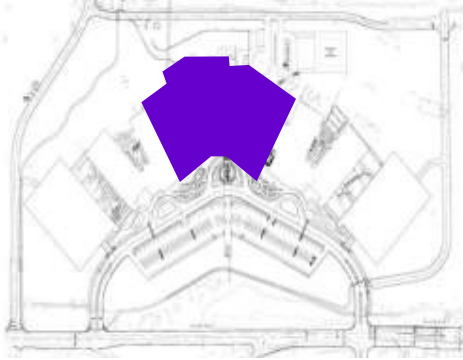
- “Pocket Battleship” Community Hospital
- Linked to WRNMMC
- Cost \$1 Billion
- Green field: allows innovation
- Model facility for basic and much advanced evidence based design

Fort Belvoir Community Hospital: Front View Facing East



EBD Principle: Patient and Family Centered Care & Care of the Whole Person

Inpatient Design



Design Features

- Single patient rooms
- Family zone with large window
- Family lounge
- Control of environment
- Personalized services
- Meditation rooms on each unit

EBD Goals:

- Decrease stress
- Increase social support
 - Provide light
- Improve privacy
- Improve rest and sleep
- Provide positive distractions



EBD Design Features: Decentralized Nursing Station

- Closer contact between staff and patient
- Less time to reach patient in emergency



- Decrease staff walking and fatigue
- Reduce Patient falls

Healing Gardens and Green Roofs



SAMC Design: S2 Inpatient Tower



National Intrepid Center of Excellence (NICoE)

Smithgroup Concept

- 65,000+ sf facility
- Cost = ~\$50M+
- Built and Equipped by FHF



NATIONAL INTREPID CENTER OF EXCELLENCE

INTREPID FALLEN HEROES FUND

February 26, 2008

SMITHGROUP

Node of Excellence: NICOE

- 10 Warriors/families per week for 2 week stay
- Interdisciplinary care plan
- Remote monitoring for effectiveness
- 20% of floor plan and staff devoted to holistic interventions
- Devise models and metrics for holistic care integration



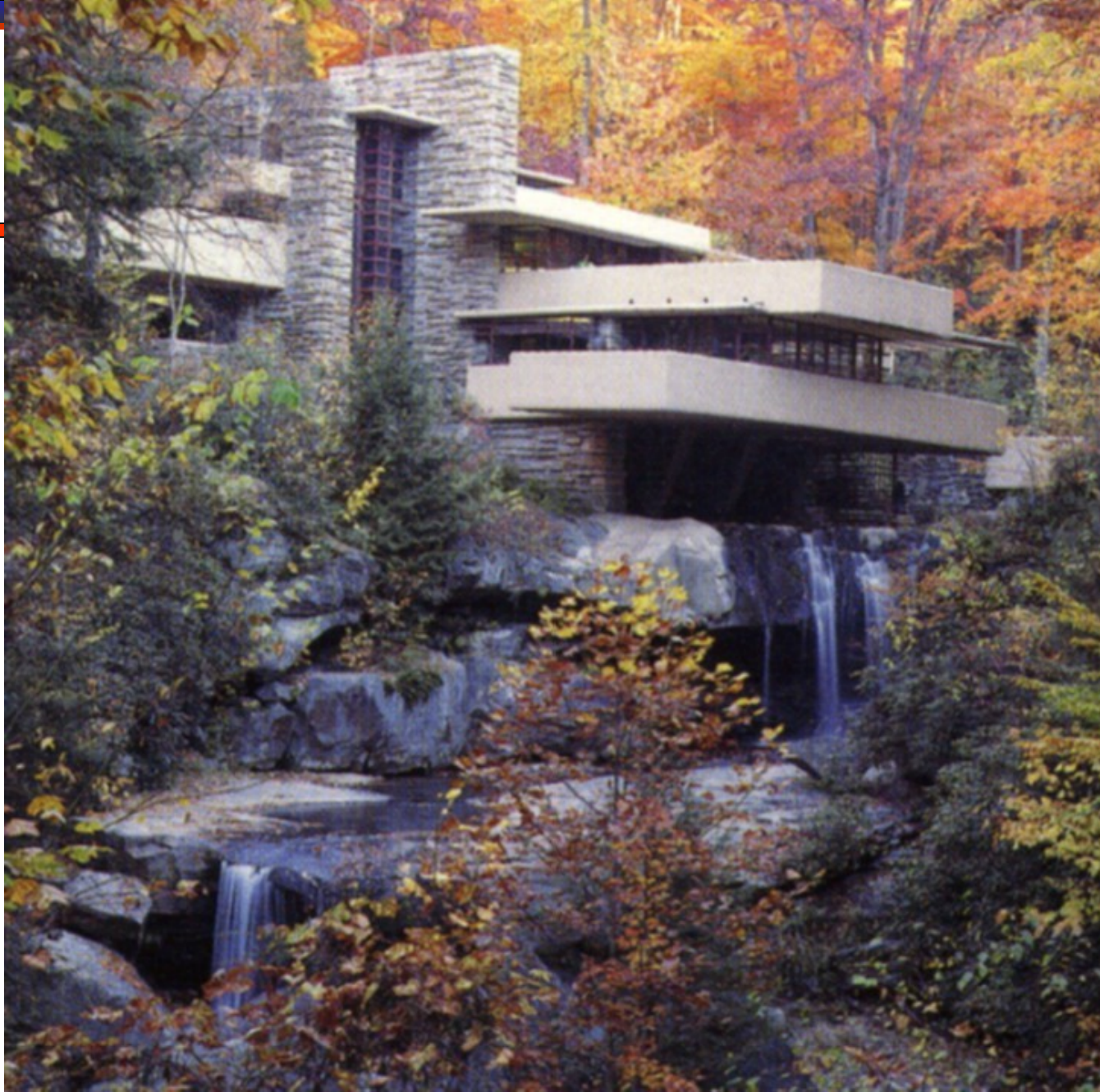


Integrated Care: The Joint Task Force (JTF-CAPMED)

- Unites all MHS facilities in National Capital Region under 1 command
- Integration of care across services
 - Key: standardize the informatics
- Master planning
- Potential for model integrated delivery system (IDS)
- Academic arm: USUHS, NIH

Ultimate Vision: The National Medical Center of the United States

- Combine military facilities, VA, NIH, USUHS in the National Capital Region
- Model facilities and Integrated Delivery System to be a laboratory for the nation
- Focus of research on healing and “green” building design, and advanced processes of care
- Could anchor a variety of proposed national health care systems



Fallingwater

DoD/Epidaurus Successes 2001-2009

- Broad acceptance of healing design principles throughout the MHS
- Augmented program of capital investment
- Inclusion of healing features into BRAC designs
- Initiatives in holistic/integrated care
- Movement toward National Medical Center and model IDS

Epidaurus Plans 2010-2011

- Epidaurus Philanthropic Initiative
 - \$25 million for healing public spaces and gardens at WRNMMC
 - Rothschild Foundation (Dr. Rob Mayer)
- Develop metrics for holism at NICOE
- Integrated NNMC/WRAMC healing arts program (funded for 2010)
- Create knowledge center at USUHS for study of holistic care and design

VADM James
Zimble
MC, USN (Ret.)



